

ATTORNEY'S DOCKET NO.  
062891.0986

PATENT  
09/497,694

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**IN THE CLAIMS**

For the convenience of the Examiner, all pending claims are set forth below, whether or not an amendment is made.

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)
11. (Canceled)
12. (Canceled)
13. (Canceled)

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14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

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30. (Cancelled)

31. (Previously Presented) Pulsed transmission system, comprising at least one transmission station for transmitting an optical signal at a transmission wavelength, at least one reception station, a fibre-optic line linking said at least one transmission station and said at least one reception station and at least one optical amplifier serially linked along said fibre-optic line, wherein said fibre-optic line has a positive overall chromatic dispersion at said transmission wavelength and comprises:

a first optical conductor element, having a first chromatic dispersion at said transmission wavelength, the first optical conductor element comprising step-index fiber; and

a chromatic dispersion compensating unit having a second chromatic dispersion at said transmission wavelength, said second chromatic dispersion being of opposite sign with respect to said first chromatic dispersion;

wherein said at least one transmission station comprises a high speed optical pulse transmitter adapted to generate an RZ optical signal at said transmission wavelength, bearing a coded information at a preset frequency, said RZ optical signal comprising optical pulses of duration  $T_{FWHM}$ , wherein:

the ratio  $T_{bit}/T_{FWHM}$ , between the inverse  $T_{bit}$  of said frequency and said duration  $T_{FWHM}$  of the pulses, is higher than 6 and lower than 10, and  
said optical pulses are substantially free from chirp.

32. (Previously Presented) Pulsed transmission system according to Claim 31, wherein said transmission station comprises at least an interfacing unit adapted to receive a first optical signal at said preset frequency bearing said coded information, said at least one interfacing unit including a receiving and converting unit adapted to receive said first information-bearing optical signal, to convert it into an electrical signal bearing said coded information, and to feed said information-bearing electrical signal to said high speed optical pulse transmitter.

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33. (Previously Presented) Pulsed transmission system according to Claim 31, wherein said high speed optical pulse transmitter comprises:

an optical pulse modulator adapted to modulate an optical signal with a sequence of periodic pulses having said duration  $T_{FWHM}$  and said preset frequency;

an optical signal modulator optically linked to said signal modulator, adapted to modulate said optical signal with said coded information; and

a generator of a continuous optical signal at said transmission wavelength, optically linked to said pulse and signal modulators.

34. (Previously Presented) Pulsed transmission system according to Claim 31, wherein said chromatic dispersion compensating unit comprises a second optical conductor element serially linked to said first optical conductor element.

35. (Previously Presented) Pulsed transmission system according to Claim 34, wherein said optical signal at said transmission wavelength has, for at least one portion of its propagation path in one of said first and second optical conductor elements, an intensity of a value such as to cause self phase modulation of said optical signal.

36. (Previously Presented) Pulsed transmission system according to Claim 34, wherein said optical amplifier has amplification characteristics such that said optical signal at said transmission wavelength has, in at least one portion of its propagation path in one of said first and second optical conductor elements, an intensity of a value such as to undergo self phase modulation.

37. (Canceled)

38. (Previously Presented) Pulsed transmission system according to Claim 31, wherein said first optical conductor element is an optical fibre with non-zero dispersion.

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39. (Previously Presented) Pulsed transmission system according to Claim 31, wherein said chromatic dispersion compensation unit is adapted to compensate a fraction of the chromatic dispersion of the line, such that the total chromatic dispersion of the line is between 100 and 120% of the compensated dispersion.

40. (Previously Presented) Optical pulse transmission method, comprising the steps of:

emitting an optical signal at a transmission wavelength and at a preset frequency bearing a coded information;

supplying the optical signal in an optical-fibre line having a chromatic dispersion and comprising a plurality of stretches of step-index fiber;

compensating the chromatic dispersion of the signal in the optical-fibre line with a chromatic dispersion of the opposite sign, so as to achieve an overall positive dispersion for the optical signal;

wherein said step of emitting comprises:

generating a sequence of substantially chirp-free optical pulses at the transmission wavelength having a duration  $T_{FWHM}$  the ratio  $T_{bit}/T_{FWHM}$ , between the inverse  $T_{bit}$  of said preset frequency and said duration  $T_{FWHM}$  of the pulses, being higher than 6 and lower than 10; and

modulating said sequence of optical pulses with said coded information.

41. (Previously Presented) Optical pulse transmission method according to Claim 40, wherein said step of generating said sequence of pulses comprises combining a first periodic electrical signal at said preset frequency and at least one second periodic electrical signal at a second frequency which is a harmonic of said preset frequency.

42. (Canceled)

43. (Canceled)

44. (Canceled)

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45. (Cancelled)

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49. (Cancelled)

50. (Cancelled)

51. (Cancelled)

52. (Cancelled)